Master Index of Volumes 1–25 ISSN 0004-3702

Artificial Intelligence

AN INTERNATIONAL JOURNAL

North-Holland
Amsterdam

RIODICAL
35
78
25
DEX DUP
LIBRARY
H
C

Artificial Intelligence

Editor-in-Chief
DANIEL G. BOBROW
Xerox Corporation
Palo Alto Research Center
3333 Coyote Hill Road
Palo Alto, CA 94304, U.S.A.

Associate Editor
P.J. HAYES
Department of Computer Science
University of Rochester
Rochester, NY 14627, U.S.A.

Coordinator Europe
H.-H. NAGEL
Fraunhofer-Institut für Informations-
und Datenverarbeitung (IITB)
Sebastian-Kneipp-Strasse 12–14
7500 Karlsruhe 1, F.R. Germany

Coordinator Far East
MAKOTO NAGAO
Dept. of Electrical Engineering
Kyoto University
Sakyo, Kyoto, Japan

Editorial Board

M.A. AIZERMAN
Institute of Control Sciences, Moscow, U.S.S.R.

S. AMAREL
Rutgers University, New Brunswick, NJ, U.S.A.

H.G. BARROW
Fairchild Laboratory for AI Research, Palo Alto, CA, U.S.A.

H. BERLINER
Carnegie-Mellon University, Pittsburgh, PA, U.S.A.

W.W. BLEDSOE
The University of Texas at Austin, TX, U.S.A.

R.S. BOYER
The University of Texas at Austin, TX, U.S.A.

M. BRADY
Massachusetts Institute of Technology, Cambridge, MA, U.S.A.

J.S. BROWN
Xerox Palo Alto Research Center, Palo Alto, CA, U.S.A.

B.G. BUCHANAN
Stanford University, Stanford, CA, U.S.A.

A. BUNDY
University of Edinburgh, Scotland, U.K.

R.M. BURSTALL
University of Edinburgh, Scotland, U.K.

A. COLMERAUER
Université Aiz-Marseille II, Marseille, France

R. DAVIS
Massachusetts Institute of Technology, Cambridge, MA, U.S.A.

E.L. ELCOCK
University of Western Ontario, London, Ont., Canada

L. ERMAN
Teknowledge, Inc., Palo Alto, CA, U.S.A.

E.A. FEIGENBAUM
Stanford University, Stanford, CA, U.S.A.

M.R. GENESERETH
Stanford University, Stanford, CA, U.S.A.

B. GROSZ
SRI International, Menlo Park, CA, U.S.A.

W.G. LEHNERT
University of Massachusetts, Amherst, MA, U.S.A.

D.W. LOVELAND
Duke University, Durham, NC, U.S.A.

J. McCARTHY
Stanford University, Stanford, CA, U.S.A.

D. McDERMOTT
Yale University, New Haven, CT, U.S.A.

T.M. MITCHELL
Rutgers University, New Brunswick, NJ, U.S.A.

U. MONTANARI
University of Pisa, Italy

R. MOORE
SRI International, Menlo Park, CA, U.S.A.

A. NEWELL
Carnegie-Mellon University, Pittsburgh, PA, U.S.A.

N.J. NILSSON
SRI International, Menlo Park, CA, U.S.A.

J. PEARL
University of California, Los Angeles, CA, U.S

C.R. PERRAULT
SRI International, Menlo Park, CA, U.S.A.

J. PITRAT
C.N.R.S., Paris, France

(continuation see inside back over)

Artificial Intelligence

Master Index of Volumes 1–25

Artificial Intelligence

AN INTERNATIONAL JOURNAL

EDITOR-IN-CHIEF
Daniel G. Bobrow
Xerox Palo Alto Research Center

ASSOCIATE EDITOR
P.J. Hayes
University of Rochester Department of Computer Science

North-Holland
Amsterdam

Artificial Intelligence

AN INTERNATIONAL JOURNAL

Subscription Information
Artificial Intelligence (ISSN 0004-3702) is published in three volumes (9 issues) a year.
The subscription price for 1985 (Volumes 25–27) is Dfl. 600.00 + Dfl. 66.00 p.p.h. = Dfl. 666.00. Our p.p.h. (postage, packing and handling) charge includes surface delivery of all issues, except to subscribers in Brazil, Canada, Hong Kong, India, Israel, Malaysia, Pakistan, People's Republic of China, Singapore, South Korea, Taiwan and the USA, who receive all issues by air delivery (S.A.L.–Surface Air Lifted) at no extra cost. For the rest of the world, airmail and S.A.L. charges are available upon request.
Reduced rates for individuals are available under certain conditions; for more information write directly to the Publisher.
Claims for missing issues will be honoured free of charge within three months after the publication date of the issues. Mail orders and inquiries to:
Elsevier Science Publishers B.V., Journals Department, P.O. Box 211, 1000 AE Amsterdam,
The Netherlands.

Abstracted in

ABSTRACTS OF COMPUTER LITERATURE
BEHAVIOR AND PHYSIOLOGY INDEX
BEHAVIORAL SCIENCES
COMPUTER ABSTRACTS
COMPUTING REVIEWS
COMPUTER AND CONTROL ABSTRACTS
CYBERNETICS ABSTRACTS
ELECTRONICS AND COMMUNICATIONS ABSTRACTS
ENGINEERING INDEX
INFORMATION PROCESSING JOURNAL
LANGUAGE AND LANGUAGE BEHAVIOR ABSTRACTS
MATHEMATICAL REVIEWS
REFERATIVNYĬ ŽURNAL MATEMATIKA
U.S.S.R. Abstracts Journal,
Series "Mathematics"
ZENTRALBLATT FÜR MATHEMATIK

© 1985, Elsevier Science Publishers B.V. (North-Holland)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher, Elsevier Science Publishers B.V. (North-Holland), P.O. Box 1991, 1000 BZ Amsterdam, The Netherlands.
Special regulations for authors—Upon acceptance of an article by the journal, the author(s) will be asked to transfer copyright of the article to the publisher. This transfer will ensure the widest possible dissemination of information.
Submission of an article for publication implies the transfer of the copyright from the author(s) to the publisher and entails the author's irrevocable and exclusive authorization of the publisher to collect any sums or considerations for copying or reproduction payable by third parties (as mentioned in article 17 paragraph 2 of the Dutch Copyright Act of 1912 and in the Royal Decree of June 20, 1974 (S. 351) pursuant to article 16b of the Dutch Copyright Act of 1912) and/or to act in or out of Court in connection therewith.
Special regulations for readers in the U.S.A.—This journal has been registered with the Copyright Clearance Center, Inc. Consent is given for copying of articles for personal or internal use, or for the personal use of specific clients. This consent is given on the condition that the copier pays through the Center the per-copy fee stated in the code on the first page of each article for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. The appropriate fee should be forwarded with a copy of the first page of the article to the Copyright Clearance Center, Inc., 27 Congress Street, Salem, MA 01970, U.S.A. If no code appears in an article, the author has not given broad consent to copy and permission to copy must be obtained directly from the author. All articles published prior to 1981 may be copied for a per-copy fee of US $2.25, also payable through the Center. This consent does not extend to other kinds of copying, such as for general distribution, resale, advertising and promotion purposes, or for creating new collective works. Special written permission must be obtained from the publisher for such copying.

Published bimonthly 0004-3702/85/$3.30 Printed in The Netherlands

Master Index

Volumes 1–25

ADAM, A. and J.-P. LAURENT (Caen, France)
LAURA, A System to Debug Student Programs **15** (1–2) (1980) 75–122
ADELSON-VELSKIY, G.M., V.L. ARLAZAROV and M.V. DONSKOY (Moscow, U.S.S.R.)
Some Methods of Controlling the Tree Search in Chess Programs **6** (4) (1975) 361–371
AGGERWAL, J.K., see WEBB, J.A. **19** (1) (1982) 107–130
AIKINS, J.S. (Palo Alto, CA)
Prototypical Knowledge for Expert Systems **20** (2) (1983) 163–210
AIKINS, J.S., see STEFIK, M. **18** (2) (1982) 135–173
ALLEN, J.F. (Rochester, NY)
Towards a General Theory of Action and Time **23** (2) (1984) 123–154
ALLEN, J.F. (Rochester, NY) and C.R. PERRAULT (Toronto, Ont.)
Analyzing Intention in Utterances **15** (3) (1980) 143–178
ALTERMAN, R. (Austin, TX)
A Dictionary Based on Concept Coherence **25** (2) (1984) 153–186
AMAREL, S., see WEISS, S.M. **11** (1–2) (1978) 145–172
AMBLER, A.P. and R.J. POPPLESTONE (Edinburgh, U.K.)
Inferring the Positions of Bodies from Specified Spatial Relationships **6** (2) (1975) 157–174
AMBLER, A.P., H.G. BARROW, C.M. BROWN, R.M. BURSTALL and R.J. POPPLESTONE (Edinburgh, U.K.)
A Versatile System for Computer-Controlled Assembly **6** (2) (1975) 129–156
AMBLER, A.P., see POPPLESTONE, R.J. **14** (1) (1980) 79–107
ANDERSON, J.R. (Pittsburgh, PA)
Cognitive Psychology (Correspondent's Report) **23** (1) (1984) 1– 11
ARLAZAROV, V.L., see ADELSON-VELSKIY, G.M. **6** (4) (1975) 361–371

BAKER, R. (Twickenham, U.K.)
A Spatially-Oriented Information Processor which

0004–3702/85/$3.30 ©1985, Elsevier Science Publishers B.V. (North-Holland)

Simulates the Motions of Rigid Objects	**4**	(1)	(1973)	29– 40
BALLARD, B.W. (Durham, NC)				
The $*$-Minimax Search Procedure for Trees Containing Chance Nodes	**21**	(3)	(1983)	327–350
BALLARD, D.H. (Rochester, NY)				
Parameter Nets	**22**	(3)	(1984)	235–267
BALZER, R., see STEFIK, M.	**18**	(2)	(1982)	135–173
BANERJI, R.B. and G.W. ERNST (Cleveland, OH)				
Strategy Construction Using Homomorphisms Between Games	**3**	(1–4)	(1972)	223–249
BARNARD, S.T. (Menlo Park, CA)				
Interpreting Perspective Images	**21**	(4)	(1983)	435–462
BARNETT, J.A. (Marina del Rey, CA)				
How Much is Control Knowledge Worth?: A Primitive Example	**22**	(1)	(1984)	77– 89
BARROW, H.G. (Palo Alto, CA)				
VERIFY: A Program for Proving Correctness of Digital Hardware Designs	**24**	(1–3)	(1984)	437–491
BARROW, H.G., see AMBLER, A.P.	**6**	(2)	(1975)	129–156
BARROW, H.G., see TENENBAUM, J.M.	**8**	(3)	(1977)	241–274
BARROW, H.G. and J.M. TENENBAUM (Menlo Park, CA)				
Interpreting Line Drawings as Three-Dimensional Surfaces	**17**	(1–3)	(1981)	75–116
BARSTOW, D.R. (New Haven, CT)				
An Experiment in Knowledge-based Automatic Programming	**12**	(2)	(1979)	73–119
BARSTOW, D.R., see GREEN, C.	**10**	(3)	(1978)	241–279
BAUDET, G.M. (Pittsburgh, PA)				
On the Branching Factor of the Alpha-Beta Pruning Algorithm	**10**	(2)	(1978)	173–199
BAUER, M.A. (London, Ont.)				
Programming by Examples	**12**	(1)	(1979)	1– 21
BECKMAN, L., A. HARALDSON, Ö. OSKARSSON and E. SANDEWALL (Linköping, Sweden)				
A Partial Evaluator, and its Use as a Programming Tool	**7**	(4)	(1976)	319–357
BELLOS, I.M., see POPPLESTONE, R.J.	**14**	(1)	(1980)	79–107
BENOIT, J., see STEFIK, M.	**18**	(2)	(1982)	135–173
BERLINER, H.J. (Pittsburgh, PA)				
A Chronology of Computer Chess and its Literature (Review Article)	**10**	(2)	(1978)	201–214
BERLINER, H.J. (Pittsburgh, PA)				

The B* Tree Search Algorithm: A Best-First Proof Procedure	**12**	(1)	(1979)	23– 40
BERLINER, H.J. and M.S. CAMPBELL (Pittsburgh, PA)				
Using Chunking to Solve Chess Pawn Endgames	**23**	(1)	(1984)	97–120
BIBEL, W. (Munich, Germany)				
Syntax-Directed, Semantics-Supported Program Synthesis	**14**	(3)	(1980)	243–261
BIBEL, W. (Karlsruhe, Germany)				
A Comparative Study of Several Proof Procedures	**18**	(3)	(1982)	269–293
BIERMANN, A.W. (Columbus, OH)				
On the Inference of Turing Machines from Sample Computations	**3**	(1–4)	(1972)	181–198
BINFORD, T.O. (Palo Alto, CA)				
Inferring Surfaces from Images	**17**	(1–3)	(1981)	205–244
BINFORD, T.O., see NEVATIA, R.	**8**	(1)	(1977)	77– 98
BIRNBAUM, L., see STEFIK, M.	**18**	(2)	(1982)	135–173
BLEDSOE, W.W. (Austin, TX)				
Splitting and Reduction Heuristics in Automatic Theorem Proving	**2**	(1)	(1971)	55– 77
BLEDSOE, W.W. (Austin, TX)				
Non-resolution Theorem Proving	**9**	(1)	(1977)	1– 35
BLEDSOE, W.W. (Austin, TX), R.S. BOYER and W.H. HENNEMAN (Cambridge, MA)				
Computer Proofs of Limit Theorems	**3**	(1–4)	(1972)	27– 60
BLEDSOE, W.W. and P. BRUELL (Austin, TX)				
A Man-Machine Theorem-Proving System	**5**	(1)	(1974)	51– 72
BLOUNT, S.E., see KOFFMAN, E.B.	**6**	(3)	(1975)	215–234
BOBROW, D.G. (Palo Alto, CA)				
Qualitative Reasoning about Physical Systems: An Introduction	**24**	(1–3)	(1984)	1– 5
BOBROW, D.G. (Palo Alto, CA) and P.J. HAYES (Rochester, NY)				
Artificial Intelligence – Where Are We?	**25**	(3)	(1985)	375–415
BOBROW, D.G., R.M. KAPLAN, M. KAY, D.A. NORMAN, H. THOMPSON and T. WINOGRAD (Palo Alto, CA)				
GUS, A Frame-Driven Dialog System	**8**	(2)	(1977)	155–173
BOLEY, H. (Hamburg, Germany)				
Directed Recursive Labelnode Hypergraphs: A New Representation-Language	**9**	(1)	(1977)	49– 85
BOSSU, G. and P. SIEGEL (Marseille, France)				
Saturation, Nonmonotonic Reasoning, and the Clos-				

ed-World Assumption	**25**	(1)	(1984)	13– 64
BOYER, R.S., see BLEDSOE, W.W.	**3**	(1–4)	(1972)	27– 60
BRADY, M. (Cambridge, MA)				
Preface – The Changing Shape of Computer Vision	**17**	(1–3)	(1981)	1– 15
BRADY, M. (Cambridge, MA)				
Computer Vision (Correspondent's Report)	**19**	(1)	(1982)	7– 16
BRADY, M. (Cambridge, MA)				
Parallelism in Vision (Correspondent's Report)	**21**	(3)	(1983)	271–183
BRAND, D. (Toronto, Ont.)				
Analytic Resolution in Theorem Proving	**7**	(4)	(1976)	285–318
BRICE, C.R. and C.L. FENNEMA (Menlo Park, CA)				
Scene Analysis Using Regions	**1**	(3)	(1970)	205–226
BROOKS, R.A. (Palo Alto, CA)				
Symbolic Reasoning Among 3-D Models and 2-D Images	**17**	(1–3)	(1981)	285–348
BROWN, C.M., see AMBLER, A.P.	**6**	(2)	(1975)	129–156
BROWN, F.M. (Austin, TX)				
An Investigation into the Goals of Research in Automatic Theorem Proving as Related to Mathematical Reasoning	**14**	(3)	(1980)	221–242
BROWN, F.M. (Edinburgh, U.K.)				
Doing Arithmetic without Diagrams	**8**	(2)	(1977)	175–200
BROWN, F.M. (Edinburgh, U.K.)				
Towards the Automation of Set Theory and its Logic	**10**	(3)	(1978)	281–316
BROWN, F.M. (Austin, TX) and S.-A. TÄRNLUND (Stockholm, Sweden)				
Inductive Reasoning on Recursive Equations	**12**	(3)	(1979)	207–229
BROWN, J.S., see DE KLEER, J.	**24**	(1–3)	(1984)	7– 83
BROWN, J.S., see LENAT, D.B.	**23**	(3)	(1984)	269–294
BRUCE, B.C. (Austin, TX)				
A Model for Temporal References and its Application in a Question Answering Program	**3**	(1–4)	(1972)	1– 25
BRUCE, B.C. (Cambridge, MA)				
Case Systems for Natural Language	**6**	(4)	(1975)	327–360
BRUELL, P., see BLEDSOE, W.W.	**5**	(1)	(1974)	51– 72
BUCHANAN, B.G., see DAVIS, R.	**8**	(1)	(1977)	15– 45
BUCHANAN, B.G. and E.A. FEIGENBAUM (Stanford, CA)				
Dendral and Meta-Dendral: Their Applications Dimension	**11**	(1–2)	(1978)	5– 24
BUNDY, A. (Edinburgh, U.K.)				
Will it Reach the Top? Prediction in the Mechanics World	**10**	(2)	(1978)	129–146

BUNDY, A. and B. WELHAM (Edinburgh, U.K.)		
Using Meta-level Inference for Selective Application of Multiple Rewrite Rule Sets in Algebraic Manipulation	**16**	(2) (1981) 189–211
BURSTALL, R.M., see AMBLER, A.P.	**6**	(2) (1975) 129–156
CAMPBELL, M.S., see BERLINER, H.J.	**23**	(1) (1984) 97–120
CAMPBELL, M.S. and T.A. MARSLAND (Edmonton, Alta.)		
A Comparison of Minimax Tree Search Algorithms	**20**	(4) (1983) 347–367
CARBONELL, J.G. (Pittsburgh, PA)		
Towards a Process Model of Human Personality Traits	**15**	(1–2) (1980) 49– 74
CARBONELL, J.G. (Pittsburgh, PA)		
Counterplanning: A Strategy-Based Model of Adversary Planning in Real-World Situations	**16**	(3) (1981) 295–329
CHANDRASEKARAN, B., see FLINCHBAUGH, B.E.	**17**	(1–3) (1981) 387–407
CHANG, C.L. (Bethesda, MD)		
Renamable Paramodulation for Automatic Theorem Proving with Equality	**1**	(4) (1970) 247–256
CHANG, C.L. and J.R. SLAGLE (Bethesda, MD)		
An Admissible and Optimal Algorithm for Searching AND/OR Graphs	**2**	(2) (1971) 117–128
CHANG, C.L. (San Jose, CA) and J.R. SLAGLE (Washington, DC)		
Using Rewriting Rules for Connection Graphs to Prove Theorems	**12**	(2) (1979) 159–178
CHARNIAK, E. (Providence, RI)		
On the Use of Framed Knowledge in Language Comprehension	**11**	(3) (1978) 225–265
CHARNIAK, E. (Providence, RI)		
A Common Representation for Problem-Solving and Language-Comprehension Information	**16**	(3) (1981) 225–255
CHERNIAVSKY, A.L. (Moscow, U.S.S.R.)		
A Program for Timetable Compilation by a Look-Ahead Method	**3**	(1–4) (1972) 61– 76
CHESTER, D. (Austin, TX)		
The Translation of Formal Proofs into English	**7**	(3) (1976) 261–278
CLANCEY, W.J. (Stanford, CA)		
The Epistemology of a Rule-Based Expert System – a Framework for Explanation	**20**	(3) (1983) 215–251
CLAYBROOK, B.G. (Blacksburg, VA)		

A New Approach to the Symbolic Factorization of Multivariate Polynomials **7** (3) (1976) 203–241
CLOWES, M.B. (Brighton, U.K.)
On Seeing Things **2** (1) (1971) 79–116
COHEN, B.L. (Kensington, Australia)
The Mechanical Discovery of Certain Problem Symmetries **8** (1) (1977) 119–131
COHEN, B.L. (Kensington, Australia)
A Powerful and Efficient Structural Pattern Recognition System **9** (3) (1977) 223–255
COLBY, K.M., see PARKISON, R.C. **9** (2) (1977) 111–134
COLBY, K.M., F.D. HILF, S. WEBER and C. KRAEMER (Stanford, CA)
Turing-Like Indistinguishability Tests for the Validation of a Computer Simulation of Paranoid Processes **3** (1–4) (1972) 199–221
COLBY, K.M., S. WEBER and F.D. HILF (Stanford, CA)
Artificial Paranoia **2** (1) (1971) 1– 25

DARLINGTON, J. (South Kensington, U.K.)
An Experimental Program Transformation and Synthesis System **16** (1) (1981) 1– 46
DARWISH, N.M. (Giza, Egypt)
A Quantitative Analysis of the Alpha-Beta Pruning Algorithm **21** (4) (1983) 405–433
DAVIS, E., see McDERMOTT, D. **22** (2) (1984) 107–156
DAVIS, L.S. (Austin, TX) and A. ROSENFELD (College Park, MD)
Cooperative Processes for Low-Level Vision: A Survey **17** (1–3) (1981) 245–263
DAVIS, M. (New York)
The Mathematics of Non-Monotonic Reasoning **13** (1–2) (1980) 73– 80
DAVIS, R. (Stanford, CA)
Interactive Transfer of Expertise: Acquisition of New Inference Rules **12** (2) (1979) 121–157
DAVIS, R. (Cambridge, MA)
Meta-Rules: Reasoning about Control **15** (3) (1980) 179–222
DAVIS, R. (Cambridge, MA)
Content Reference: Reasoning about Rules **15** (3) (1980) 223–239
DAVIS, R. (Cambridge, MA)
Diagnostic Reasoning Based on Structure and Behavior **24** (1–3) (1984) 347–410
DAVIS, R., B.G. BUCHANAN and

E. SHORTLIFFE (Stanford, CA)
Production Rules as a Representation for a Knowledge-Based Consultation Program **8** (1) (1977) 15– 45
DAVIS, R. (Cambridge, CA) and R.G. SMITH (Dartmouth, Nova Scotia)
Negotiation as a Metaphor for Distributed Problem Solving **20** (1) (1983) 63–109
DE KLEER, J. (Palo Alto, CA)
How Circuits Work **24** (1–3) (1984) 205–280
DE KLEER, J. and J.S. BROWN (Palo Alto, CA)
A Qualitative Physics Based on Confluences **24** (1–3) (1984) 7– 83
DECHTER, R., see HUYN, N. **15** (3) (1980) 241–254
DENNETT, D.C. (Medford, MA)
Recent Work in Philosophy of Interest to AI (Correspondent's Report) **19** (1) (1982) 3– 5
DENNETT, D.C. (Medford, MA)
Recent Work in Philosophy II (Correspondent's Report) **22** (3) (1984) 231–233
DERSHOWITZ, N. (Urbana, IL)
Synthetic Programming **25** (3) (1985) 323–373
DIETTERICH, T.G. (Stanford, CA) and R.S. MICHALSKI (Urbana, IL)
Inductive Learning of Structural Descriptions: Evaluation Criteria and Comparative Review of Selected Methods **16** (3) (1981) 257–294
DIETTERICH, T.G. (Stanford, CA) and R.S. MICHALSKI (Urbana, IL)
Discovering Patterns in Sequences of Events **25** (2) (1984) 187–232
DIXON, N.R., see TAPPERT, C.C. **5** (2) (1974) 95–113
DONSKOY, M.V., see ADELSON-VELSKIY, G.M. **6** (4) (1975) 361–371
DOYLE, J. (Cambridge, MA)
A Truth Maintenance System **12** (3) (1979) 231–272
DOYLE, J., see McDERMOTT, D. **13** (1–2) (1980) 41– 72
DRAPER, S.W. (La Jolla, CA)
The Use of Gradient and Dual Space in Line-Drawing Interpretation **17** (1–3) (1981) 461–508
DURNIN, J.H., see SCANDURA, J.M. **5** (2) (1974) 149–183
DYER, M.G., see LEHNERT, W.G. **20** (1) (1983) 15– 62

EASTMAN, C.M. (Pittsburgh, PA)
Automated Space Planning **4** (1) (1973) 41– 64
ELLIOTT, G.L., see HARALICK, R.M. **14** (3) (1980) 263–313
ERNST, G.W., see BANERJI, R.B. **3** (1–4) (1972) 223–249

FAHLMAN, S.E. (Cambridge, MA)				
A Planning System for Robot Construction Tasks	**5**	(1)	(1974)	1– 49
FALK, G. (New Brunswick, NJ)				
Interpretation of Imperfect Line Data as a Three-Dimensional Scene	**3**	(1–4)	(1972)	101–144
FAUGHT, W.S., see PARKISON, R.C.	**9**	(2)	(1977)	111–134
FEIGENBAUM, E.A., see BUCHANAN, B.G.	**11**	(1–2)	(1978)	5– 24
FELDMAN, J.A. (Stanford, CA) and Y. YAKIMOVSKY (Pasadena, CA)				
Decision Theory and Artificial Intelligence: I. A Semantics-Based Region Analyzer	**5**	(4)	(1974)	349–371
FENNEMA, C.L., see BRICE, C.R.	**1**	(3)	(1970)	205–226
FEUSTEL, C., see FOWLER, G.	**21**	(1–2)	(1983)	245–269
FIKES, R.E. (Pittsburgh, PA)				
REF-ARF: A System for Solving Problems Stated as Procedures	**1**	(1–2)	(1970)	27–120
FIKES, R.E. (Pittsburgh, PA)				
REF-ARF: A System for Solving Problems Stated as Procedures (Errata)	**1**	(4)	(1970)	299
FIKES, R.E. (Palo Alto, CA)				
Odyssey: A Knowledge-Based Assistant	**16**	(3)	(1981)	331–361
FIKES, R.E., P.E. HART and N.J. NILSSON (Menlo Park, CA)				
Learning and Executing Generalized Robot Plans	**3**	(1–4)	(1972)	251–288
FIKES, R.E. and N.J. NILSSON (Menlo Park, CA)				
STRIPS: A New Approach to the Application of Theorem Proving to Problem Solving	**2**	(3–4)	(1971)	189–208
FINKEL, R.A. (Madison, WI) and J.P. FISHBURN (Murray Hill, NJ)				
Parallelism in Alpha-Beta Search	**19**	(1)	(1982)	89–106
FISHBURN, J.P., see FINKEL, R.A.	**19**	(1)	(1982)	89–106
FISHMAN, D.H., see MINKER, J.	**4**	(3–4)	(1973)	225–243
FISHMAN, D.H. (Amherst, MA) and J. MINKER (College Park, MD)				
II-Representation: A Clause Representation for Parallel Search	**6**	(2)	(1975)	103–128
FLINCHBAUGH, B.E. and B. CHANDRASEKARAN (Columbus, OH)				
A Theory of Spatio-Temporal Aggregation for Vision	**17**	(1–3)	(1981)	387–407
FOLETT, R. (Kensington, Australia)				
Synthesising Recursive Functions with Side Effects	**13**	(3)	(1980)	175–200
FORBUS, K.D. (Cambridge, MA)				
Qualitative Process Theory	**24**	(1–3)	(1984)	85–168

FORGY, C.L. (Pittsburgh, PA)				
Rete: A Fast Algorithm for the Many Pattern/Many Object Pattern Match Problem	**19**	(1)	(1982)	17– 37
FOWLER, G., R.M. HARALICK, F.G. GRAY, C. FEUSTEL (Blacksburg, VA) and C. GRINSTEAD (Swarthmore, PA)				
Efficient Graph Automorphism by Vertex Partitioning	**21**	(1–2)	(1983)	245–269
FREUDER, E.C. (Durham, NH)				
On the Knowledge Required to Label a Picture Graph	**15**	(1–2)	(1980)	1– 17
FREUDER, E.C., see A.K. MACKWORTH	**25**	(1)	(1984)	65– 74
FRISBY, J.P., see MAYHEW, J.E.W.	**17**	(1–3)	(1981)	349–385
FUNT, B.V. (Buffalo, NY)				
Problem-Solving with Diagrammatic Representations	**13**	(3)	(1980)	201–230
GELPERIN, D. (Haifa, Israel)				
On the Optimality of *A**	**8**	(1)	(1977)	69– 76
GENESERETH, M.R. (Stanford, CA)				
The Use of Design Descriptions in Automated Diagnosis	**24**	(1–3)	(1984)	411–436
GEORGE, F.H., see SHIMURA, M.	**4**	(3–4)	(1973)	203–223
GEORGEFF, M.P. (Clayton, Australia)				
Procedural Control in Production Systems	**18**	(2)	(1982)	175–201
GEORGEFF, M.P. (Victoria, Australia)				
Strategies in Heuristic Search	**20**	(4)	(1983)	393–425
GILLOGLY, J.J. (Pittsburgh, PA)				
The Technology Chess Program	**3**	(1–4)	(1972)	145–163
GILMORE, P.C. (Yorktown Heights, NY)				
An Examination of the Geometry Theorem Machine	**1**	(3)	(1970)	171–187
GLYMOUR, C. (Pittsburgh, PA)				
Independence Assumptions and Bayesian Updating	**25**	(1)	(1984)	95–100
GOLDSTEIN, I.P. (Cambridge, MA)				
Summary of MYCROFT: A System for Understanding Simple Picture Programs	**6**	(3)	(1975)	249–288
GOODSON, J.L., see SCHMIDT, C.F.	**11**	(1–2)	(1978)	45– 83
GORRY, G.A., see KAHN, K.	**9**	(1)	(1977)	87–108
GRAY, F.G., see FOWLER, G.	**21**	(1–2)	(1983)	245–269
GRAY, N.A.B. (Wollongong, Australia)				
Applications of Artificial Intelligence for Organic Chemistry: Analysis of C-13 Spectra	**22**	(1)	(1984)	1– 21
GREEN, C. (Palo Alto, CA) and D.R. BARSTOW (New Haven, CT)				
On Program Synthesis Knowledge	**10**	(3)	(1978)	241–279

GRIFFITH, A.K. (Cambridge, MA)				
A Comparison and Evaluation of Three Machine Learning Procedures as Applied to the Game of Checkers	**5**	(2)	(1974)	137–148
GRINSTEAD, C., see FOWLER, G.	**21**	(1–2)	(1983)	245–269
GRISHMAN, R. and L. HIRSCHMAN (New York)				
Question Answering from Natural Language Medical Data Bases	**11**	(1–2)	(1978)	25–43
GROSZ, B.J. (Philadelphia, PA)				
Natural Language Processing (Correspondent's Report)	**19**	(2)	(1982)	131–136
GROSZ, B.J. (Menlo Park, CA)				
Natural-Language Processing (Correspondent's Report)	**25**	(1)	(1984)	1–4

HANNA, F.K., see RITCHIE, G.D.	**23**	(3)	(1984)	249–268
HARALDSON, A., see BECKMAN, L.	**7**	(4)	(1976)	319–357
HARALICK, R.M., see FOWLER, G.	**21**	(1–2)	(1983)	245–269
HARALICK, R.M. and G.L. ELLIOTT (Blacksburg, VI)				
Increasing Tree Search Efficiency for Constraint Satisfaction Problems	**14**	(3)	(1980)	263–313
HARALICK, R.M. (Lawrence, KS) and K. RIPKEN (Munich, Germany)				
An Associative-Categorical Model of World Meaning	**6**	(1)	(1975)	75–99
HARLEY, S., see LEHNERT, W.G.	**20**	(1)	(1983)	15–62
HARRIS, L.R. (Hanover, NH)				
The Heuristic Search under Conditions of Error	**5**	(3)	(1974)	217–234
HART, P.E., see FIKES, R.E.	**3**	(1–4)	(1972)	251–288
HART, T.P., see YATES, R.A.	**1**	(4)	(1970)	257–289
HAVEL, I.M., see ŠTĚPÁNKOVÁ, O.	**7**	(2)	(1976)	129–161
HAYES, P.J., see BOBROW, D.G.	**25**	(3)	(1985)	375–415
HAYES-ROTH, F., see STEFIK, M.	**18**	(2)	(1982)	135–173
HEDRICK, C.L. (Urbana, IL)				
Learning Production Systems from Examples	**7**	(1)	(1976)	21–49
HENDRIX, G.G. (Austin, TX)				
Modeling Simultaneous Actions and Continuous Processes	**4**	(3–4)	(1973)	145–180
HENNEMAN, W.H., see BLEDSOE, W.W.	**3**	(1–4)	(1972)	27–60
HENSCHEN, L., see WOS, L.	**22**	(3)	(1984)	303–356
HEWITT, C. (Cambridge, MA)				
Viewing Control Structures as Patterns of Passing Messages	**8**	(3)	(1977)	323–364

HEWITT, C. (Cambridge, MA)	
Viewing Control Structures as Patterns of Passing Messages (Comments)	**10** (3) (1978) 317–318
HILDRETH, E.C. (Cambridge, MA)	
Computations Underlying the Measurement of Visual Motion	**23** (3) (1984) 309–354
HILF, F.D., see COLBY, K.M.	**2** (1) (1971) 1– 25
HILF, F.D., see COLBY, K.M.	**3** (1–4) (1972) 199–221
HIRSCHMAN, L., see GRISHMAN, R.	**11** (1–2) (1978) 25– 43
HOBBS, J.R. and S.J. ROSENSCHEIN (New York)	
Making Computational Sense of Montague's Intensional Logic	**9** (3) (1977) 287–306
HODES, L. (Bethesda, MD)	
Solving Problems by Formula Manipulation in Logic and Linear Inequalities	**3** (1–4) (1972) 165–174
HORN, B.K.P. (Cambridge, MA)	
Understanding Image Intensities	**8** (2) (1977) 201–231
HORN, B.K.P., see IKEUCHI, K.	**17** (1–3) (1981) 141–184
HORN, B.K.P. and B.G. SCHUNCK (Cambridge, MA)	
Determining Optical Flow	**17** (1–3) (1981) 185–203
HSIANG, J. (Stony Brook, NY)	
Refutational Theorem Proving Using Term-Rewriting Systems	**25** (3) (1985) 255–300
HUYN, N., R. DECHTER and J. PEARL (Los Angeles, CA)	
Probabilistic Analysis of the Complexity of A^*	**15** (3) (1980) 241–254
IKEUCHI, K. (Sakura-Mura, Japan)	
Shape from Regular Patterns	**22** (1) (1984) 49– 75
IKEUCHI, K. (Sakura-mura, Japan) and B.K.P. HORN (Cambridge, MA)	
Numerical Shape from Shading and Occluding Boundaries	**17** (1–3) (1981) 141–184
JAMES, M., see WEISCHEDEL, R.M.	**10** (3) (1978) 225–240
JOHNSON, P.N., see LEHNERT, W.G.	**20** (1) (1983) 15– 62
KADANE, J.B., see SIMON, H.A.	**6** (3) (1975) 235–247
KAHN, K. and G.A. GORRY (Cambridge, MA)	
Mechanizing Temporal Knowledge	**9** (1) (1977) 87–108
KANADE, T. (Pittsburgh, PA)	
A Theory of Origami World	**13** (3) (1980) 279–311

KANADE, T. (Pittsburgh, PA)
  Recovery of the Three-Dimensional Shape of an Object from a Single View **17** (1–3) (1981) 409–460
KANAL, L., see KUMAR, V. **21** (1–2) (1983) 179–198
KANAL, L., see NAU, D.S. **23** (1) (1984) 29– 58
KANATANI, K. (Gunma, Japan)
  Detection of Surface Orientation and Motion from Texture by a Stereological Technique **23** (2) (1984) 213–237
KANT, E. (Pittsburgh, PA)
  On the Efficient Synthesis of Efficient Programs **20** (3) (1983) 253–305
KAPLAN, R.M. (Cambridge, MA)
  Augmented Transition Networks as Psychological Models of Sentence Comprehension **3** (1–4) (1972) 77–100
KAPLAN, R.M., see BOBROW, D.G. **8** (2) (1977) 155–173
KAPLAN, S.J. (Stanford, CA)
  Cooperative Responses from a Portable Natural Language Query System **19** (2) (1982) 165–187
KARP, R.M. (Berkeley, CA) and J. PEARL (Los Angeles, CA)
  Searching for an Optimal Path in a Tree with Random Costs **21** (1–2) (1983) 99–116
KAY, M., see BOBROW, D.G. **8** (2) (1977) 155–173
KITAHASHI, T., see NIIZUMA, S. **25** (2) (1984) 117–151
KLING, R.E. (Menlo Park, CA)
  A Paradigm for Reasoning by Analogy **2** (2) (1971) 147–178
KNUTH, D.E. and R.W MOORE (Stanford, CA)
  An Analysis of Alpha-Beta Pruning **6** (4) (1975) 293–326
KOCHEN, M. (Ann Arbor, MI)
  Representations and Algorithms for Cognitive Learning **5** (3) (1974) 199–216
KOFFMAN, E.B. (Philadelphia, PA) and S.E. BLOUNT (Maynard, MA)
  Artificial Intelligence and Automatic Programming in CAI **6** (3) (1975) 215–234
KORF, R.E. (Pittsburgh, PA)
  Toward a Model of Representation Changes **14** (1) (1980) 41– 78
KOWALSKI, R. and D. KUEHNER (Edinburgh, U.K.)
  Linear Resolution with Selection Function **2** (3–4) (1971) 227–260
KRAEMER, C., see COLBY, K.M. **3** (1–4) (1972) 199–221
KRISHNAN, S., see WIPKE, W.T. **11** (1–2) (1978) 173–193
KUEHNER, D., see KOWALSKI, R. **2** (3–4) (1971) 227–260

KUIPERS, B. (Cambridge, MA)	
Commonsense Reasoning About Causality: Deriving Behavior from Structure	**24** (1–3) (1984) 169–203
KULIKOWSKI, C.A., see WEISS, S.M.	**11** (1–2) (1978) 145–172
KUMAR, V., see NAU, D.S.	**23** (1) (1984) 29– 58
KUMAR, V. and L. KANAL (College Park, MD)	
A General Branch and Bound Formulation for Understanding and Synthesizing And/Or Tree Search Procedures	**21** (1–2) (1983) 179–198
LAURENT, J.-P. (Caen, France)	
A Program that Computes Limits Using Heuristics to Evaluate the Indeterminate Forms	**4** (2) (1973) 69– 94
LAURENT, J.-P., see ADAM, A.	**15** (1–2) (1980) 75–122
LAURIERE, J.-L. (Paris, France)	
A Language and a Program for Stating and Solving Combinatorial Problems	**10** (1) (1978) 29–127
LEBOWITZ, M. (New York)	
Memory-Based Parsing	**21** (4) (1983) 363–404
LEHNERT, W.G., M.G. DYER, P.N. JOHNSON, C.J. YANG and S. HARLEY (New Haven, CT)	
BORIS – An Experiment in In-Depth Understanding of Narratives	**20** (1) (1983) 15– 62
LENAT, D.B. (Pittsburgh, PA)	
The Ubiquity of Discovery	**9** (3) (1977) 257–285
LENAT, D.B. (Stanford, CA)	
The Nature of Heuristics	**19** (2) (1982) 189–249
LENAT, D.B. (Stanford, CA)	
Theory Formation by Heuristic Search. The Nature of Heuristic II: Background and Examples	**21** (1–2) (1983) 31– 59
LENAT, D.B. (Stanford, CA)	
EURISKO: A Program That Learns New Heuristics and Domain Concepts. The Nature of Heuristics III: Program Design and Results	**21** (1–2) (1983) 61– 98
LENAT, D.B., (Stanford, CA) and J.S. BROWN (Palo Alto, CA)	
Why AM and EURISKO Appear to Work	**23** (3) (1984) 269–294
LEVESQUE, H.J. (Palo Alto, CA)	
Foundations of a Functional Approach to Knowledge Representation	**23** (2) (1984) 155–212
LEVI, G. and F. SIROVICH (Pisa, Italy)	
Generalized And/Or Graphs	**7** (3) (1976) 243–259
LEVITT, K.N., see WALDINGER, R.J.	**5** (3) (1974) 235–316

LOZANO-PEREZ, T. (Cambridge, MA)				
Robotics (Correspondent's Report)	**19**	(2)	(1982)	137–143
LOZANO-PEREZ, T. (Cambridge, MA)				
Compliance in Robot Manipulation (Correspondent's Report)	**25**	(1)	(1984)	5– 12
LUCKHAM, D. (Stanford, CA) and N.J. NILSSON (Menlo Park, CA)				
Extracting Information from Resolution Proof Trees	**2**	(1)	(1971)	27– 54
MACKWORTH, A.K. (Brighton, U.K.)				
Interpreting Pictures of Polyhedral Scenes	**4**	(2)	(1973)	121–137
MACKWORTH, A.K. (Vancouver, BC)				
Consistency in Networks of Relations	**8**	(1)	(1977)	99–118
MACKWORTH, A.K. (Vancouver, BC) and E.C. FREUDER (Durham, NH)				
The Complexity of Some Polynomial Consistency Algorithms for Constraint Satisfaction Problems	**25**	(1)	(1984)	65– 74
MAKHOUL, J., see WOODS, W.A.	**5**	(1)	(1974)	73– 91
MANNA, Z. (Stanford, CA)				
The Correctness of Nondeterministic Programs	**1**	(1–2)	(1970)	1– 26
MANNA, Z. (Rehovot, Israel) and R.J. WALDINGER (Menlo Park, CA)				
Knowledge and Reasoning in Program Synthesis	**6**	(2)	(1975)	175–208
MARINOV, V., see SIKLÓSSY, L.	**4**	(1)	(1973)	1– 27
MARR, D. (Cambridge, MA)				
Artificial Intelligence a Personal View	**9**	(1)	(1977)	37– 48
MARSLAND, T.A., see CAMPBELL, M.S.	**20**	(4)	(1983)	347–367
MARTELLI, A. (Pisa, Italy)				
On the Complexity of Admissible Search Algorithms	**8**	(1)	(1977)	1– 13
MAXWELL, P.C. (Kensington, Australia)				
Alternative Descriptions in Line Drawing Analysis	**5**	(4)	(1974)	325–348
MAYHEW, J.E.W. and J.P. FRISBY (Sheffield, U.K.)				
Phychophysical and Computational Studies towards a Theory of Human Stereopsis	**17**	(1–3)	(1981)	349–385
MAZLACK, L.J. (Guelph, Ont.)				
Computer Construction of Crossword Puzzles Using Precedence Relationships	**7**	(1)	(1976)	1– 19
McCARTHY, J. (Stanford, CA)				
Circumscription – A Form of Non-Monotonic Reasoning	**13**	(1–2)	(1980)	27– 39
McCARTHY, J. (Stanford, CA)				
Addendum: Circumscription and other Non-Monotonic Formalisms	**13**	(1–2)	(1980)	171–172

McCORD, M.C. (Lexington, KY)
Using Slots and Modifiers in Logic Grammars for Natural Language **18** (3) (1982) 327–367
McDERMOTT, D. and E. DAVIS (New Haven, CT)
Planning Routes through Uncertain Territory **22** (2) (1984) 107–156
McDERMOTT, D. (New Haven, CT) and J. DOYLE (Cambridge, MA)
Non-Monotonic Logic I **13** (1–2) (1980) 41– 72
McDERMOTT, J. (Pittsburgh, PA)
R1: A Rule-Based Configurer of Computer Systems **19** (1) (1982) 39– 88
McSKIMIN, J.R., see MINKER, J. **4** (3–4) (1973) 225–243
MELTZER, B. (Edinburgh, U.K.)
The Semantics of Induction and the Possibility of Complete Systems of Inductive Inference **1** (3) (1970) 189–192
MÉRÕ, L. (Budapest, Hungary)
A Heuristic Search Algorithm with Modifiable Estimate **23** (1) (1984) 13– 27
MICHALSKI, R.S. (Urbana, IL)
A Theory and Methodology of Inductive Learning **20** (2) (1983) 111–161
MICHALSKI, R.S., see DIETTERICH, T.G. **16** (3) (1981) 257–294
MICHALSKI, R.S., see DIETTERICH, T.G. **25** (2) (1984) 187–232
MINICOZZI, E. and R. REITER (Vancouver, BC)
A Note on Linear Resolution Strategies in Consequence-Finding **3** (1–4) (1972) 175–180
MINKER, J., see FISHMAN, D.H. **6** (2) (1975) 103–128
MINKER, J. (College Park, MD), D.H. FISHMAN (Amherst, MA) and J.R. McSKIMIN (College Park, MD)
The Q* Algorithm a Search Strategy for a Deductive Question-Answering System **4** (3–4) (1973) 225–243
MITCHELL, T.M. (New Brunswick, NJ)
Generalization as Search **18** (2) (1982) 203–226
MONTANARI, U. (Stanford, CA)
Heuristically Guided Search and Chromosome Matching **1** (4) (1970) 227–245
MOORE, R.C. (Menlo Park, CA)
Semantical Considerations of Nonmonotonic Logic **25** (1) (1984) 75– 94
MOORE, R.W., see KNUTH, D.E. **6** (4) (1975) 293–326
MORGAN, C. G. (Edmonton, Alta.)
Hypothesis Generation by Machine **2** (2) (1971) 179–187
MURESAN, L.V., see PEDNAULT, E.P.D. **16** (2) (1982) 213–222
MURRAY, N.V. (Syracuse, NY)
Completely Non-Clausal Theorem Proving **18** (1) (1982) 67– 85

MYCROFT, A. and R.A. O'KEEFE (Edinburgh, U.K.) A Polymorphic Type System for Prolog	**23**	(3)	(1984)	295–307
NAU, D.S. (College Park, MD) The Last Player Theorem	**18**	(1)	(1982)	53– 65
NAU, D.S. (College Park, MD) An Investigation of the Causes of Pathology in Games	**19**	(3)	(1982)	257–278
NAU, D.S. (College Park, MD) Pathology on Game Trees Revisited and an Alternative to Minimaxing	**21**	(1–2)	(1983)	221–244
NAU, D.S., V. KUMAR and L. KANAL (College Park, MD) General Branch and Bound, and Its Relation to A* and AO*	**23**	(1)	(1984)	29– 58
NEVATIA, R. (Los Angeles, CA) and T.O. BINFORD (Stanford, CA) Description and Recognition of Curved Objects	**8**	(1)	(1977)	77– 98
NEVINS, A.J. (Cambridge, MA) Plane Geometry Theorem Proving Using Forward Chaining	**6**	(1)	(1975)	1– 23
NEVINS, A.J. (Cambridge, MA) A Relaxation Approach to Splitting in an Automatic Theorem Prover	**6**	(1)	(1975)	25– 39
NEWBORN, M.M. (Montreal, Que.) The Efficiency of the Alpha-Beta Search on Trees with Branch-dependent Terminal Node Scores	**8**	(2)	(1977)	137–153
NEWELL, A. (Pittsburgh, PA) The Knowledge Level	**18**	(1)	(1982)	87–127
NEWELL, A., see WATERMAN, D.A.	**2**	(3–4)	(1971)	285–318
NIIZUMA, S. (Hamamatsu, Japan) and T. KITAHASHI (Tempaku, Japan) A Problem-Decomposition Method Using Differences or Equivalence Relations between States	**25**	(2)	(1984)	117–151
NILSSON, N.J., see FIKES, R.E.	**2**	(3–4)	(1971)	189–208
NILSSON, N.J., see FIKES, R.E.	**3**	(1–4)	(1972)	251–288
NILSSON, N.J., see LUCKHAM, D.	**2**	(1)	(1971)	27– 54
NISHIHARA, H.K. (Cambridge, MA) Intensity, Visible-Surface, and Volumetric Representations	**17**	(1–3)	(1981)	265–284
NORMAN, A., see BOBROW, D.G.	**8**	(2)	(1977)	155–173

NORTON, L.M. (Bethesda, MD) Experiments with a Heuristic Theorem-Proving Program for Predicate Calculus with Equality	**2** (3–4) (1971) 261–284
NORTON, L.M. (Bethesda, MD) Automated Analysis of Instructional Text	**20** (3) (1983) 307–344
NUDEL, B. (New Brunswick, NJ) Consistent-Labeling Problems and their Algorithms: Expected-Complexities and Theory-Based Heuristics	**21** (1–2) (1983) 135–178
O'GORMAN, F. (Brighton, U.K.) Edge Detection Using Walsh Functions (Technical Note)	**10** (2) (1978) 215–223
O'KEEFE, R.A., see MYCROFT, A.	**23** (3) (1984) 295–307
OSKARSSON, Ö., see BECKMAN, L.	**7** (4) (1976) 319–357
OUCHI, G.I., see WIPKE, W.T.	**11** (1–2) (1978) 173–193
PALAY, A.J. (Pittsburgh, PA) The B* Tree Search Algorithm – New Results	**19** (2) (1982) 145–163
PARKISON, R.C., K.M. COLBY and W.S. FAUGHT (Los Angeles, CA) Conversational Language Comprehension Using Integrated Pattern-Matching and Parsing	**9** (2) (1977) 111–134
PASTRE, D. (Paris, France) Automatic Theorem Proving in Set Theory	**10** (1) (1978) 1– 27
PAUKER, S.G., see SZOLOVITS, P.	**11** (1–2) (1978) 115–144
PEARL, J. (Los Angeles, CA) Asymptotic Properties of Minimax Trees and Game-Searching Procedures	**14** (2) (1980) 113–138
PEARL, J. (Los Angeles, CA) Knowledge versus Search: A Quantitative Analysis Using *A**	**20** (1) (1983) 1– 13
PEARL, J. (Los Angeles, CA) On the Nature of Pathology in Game Searching	**20** (4) (1983) 427–453
PEARL, J., see HUYN, N.	**15** (3) (1980) 241–254
PEARL, J., see KARP, R.M.	**21** (1–2) (1983) 99–116
PEARL, J., see ROIZEN, I.	**21** (1–2) (1983) 199–220
PEDNAULT, E.P.D., S.W. ZUCKER and L.V. MURESAN (Montreal, Que.) On the Independence Assumption Underlying Subjective Bayesian Updating	**16** (2) (1981) 213–222
PENNINGTON, K.S., see WILL, P.M.	**2** (3–4) (1971) 319–329
PEREIRA, F.C.N. and D.H.D. WARREN (Edinburgh, U.K.)	

Definite Clause Grammars for Language Analysis – A Survey of the Formalism and a Comparison with Augmented Transition Networks	**13**	(3)	(1980)	231–278
PERLIS, D. (College Park, MD)				
Languages with Self-Reference I: Foundations	**25**	(3)	(1985)	301–322
PERRAULT, C.R., see ALLEN, J.F.	**15**	(3)	(1980)	143–178
PITRAT, J. (Paris, France)				
A Chess Combination Program Which Uses Plans	**8**	(3)	(1977)	275–321
PLAISTED, D.A. (Urbana, IL)				
Theorem Proving with Abstraction	**16**	(1)	(1981)	47–108
PLAISTED, D.A. (Urbana, IL)				
A Simplified Problem Reduction Format	**18**	(2)	(1982)	227–261
POHL, I. (Yorktown Heights, NY)				
Heuristic Search Viewed as Path Finding in a Graph	**1**	(3)	(1970)	193–204
POLITAKIS, P. and S.M. WEISS (New Brunswick, NJ)				
Using Empirical Analysis to Refine Expert System Knowledge Bases	**22**	(1)	(1984)	23– 48
POPPLESTONE, R.J., see AMBLER, A.P.	**6**	(2)	(1975)	129–156
POPPLESTONE, R.J., see AMBLER, A.P.	**6**	(2)	(1975)	157–174
POPPLESTONE, R.J., A.P. AMBLER and I.M. BELLOS (Edinburgh, U.K.)				
An Interpreter for a Language for Describing Assemblies	**14**	(1)	(1980)	79–107
PURDOM Jr., P.W. (Bloomington, IN)				
Search Rearrangement Backtracking and Polynomial Average Time	**21**	(1–2)	(1983)	117–133
PYLYSHYN, Z.W. (London, Ont.)				
Literature from Cognitive Psychology (Correspondent's Report)	**19**	(3)	(1982)	251–255
RAPHAEL, B., see YATES, R.A.	**1**	(4)	(1970)	257–289
REICHMANN-ADAR, R. (La Jolla, CA)				
Extended Person-Machine Interface	**22**	(2)	(1984)	157–218
REITER, R. (Vancouver, BC)				
A Logic for Default Reasoning	**13**	(1–2)	(1980)	81–132
REITER, R., see MINICOZZI, E.	**3**	(1–4)	(1972)	175–180
RENDELL, L. (Guelph, Ont.)				
A New Basis for State-Space Learning Systems and a Successful Implementation	**20**	(4)	(1983)	369–392
RICH, A., see SIKLÓSSY, L.	**4**	(1)	(1973)	1– 27
RIEGER, C. (College Park, MD)				

On Organization of Knowledge for Problem Solving and Language Comprehension **7** (2) (1976) 89–127
RIEGER III, C.J., see SCHANK, R.C. **5** (4) (1974) 373–412
RIPKEN, K., see HARALICK, R.M. **6** (1) (1975) 75– 99
RITCHIE, G.D. (Edinburgh, U.K.) and F.K. HANNA (Canterbury, U.K.)
AM: A Case Study in AI Methodology **23** (3) (1984) 249–268
ROACH, J., see SIKLÓSSY, L. **6** (1) (1975) 41– 52
ROIZEN, I. and J. PEARL (Los Angeles, CA)
A Minimax Algorithm Better than Alpha-Beta? Yes and No **21** (1–2) (1983) 199–220
ROSENBLOOM, P.S. (Pittsburgh, PA)
A World-Championship-Level Othello Program **19** (3) (1982) 279–320
ROSENFELD, A., see DAVIS, L.S. **17** (1–3) (1981) 245–263
ROSENSCHEIN, S.J., see HOBBS, J.R. **9** (3) (1977) 287–306
RUTH, G.R. (Cambridge, MA)
Intelligent Program Analysis **7** (1) (1976) 65– 85

SACERDOTI, E.D. (Menlo Park, CA)
Planning in a Hierarchy of Abstraction Spaces **5** (2) (1974) 115–135
SACERDOTI, E.D., see STEFIK, M. **18** (2) (1982) 135–173
SAFIR, A., see WEISS, S.M. **11** (1–2) (1978) 145–172
SANDEWALL, E. (Uppsala, Sweden)
Formal Methods in the Design of Question-Answering Systems **2** (2) (1971) 129–145
SANDEWALL, E., see BECKMAN, L. **7** (4) (1976) 319–357
SCANDURA, J.M., J.H. DURNIN and W.H. WULFECK II (Philadelphia, PA)
Higher Order Rule Characterization of Heuristics for Compass and Straight Edge Constructions in Geometry **5** (2) (1974) 149–183
SCHANK, R.C. (New Haven, CT)
Interestingness: Controlling Inferences **12** (3) (1979) 273–297
SCHANK, R.C. and C.J. RIEGER III (Stanford, CA)
Inference and the Computer Understanding of Natural Language **5** (4) (1974) 373–412
SCHMIDT, C.F., N.S. SRIDHARAN and J.L. GOODSON (New Brunswick, NJ)
The Plan Recognition Problem: An Intersection of Psychology and Artificial Intelligence **11** (1–2) (1978) 45– 83
SCHUBERT, L.K. (Edmonton, Alta.)
Extending the Expressive Power of Semantic Networks **7** (2) (1976) 163–198

SCHUBERT, L.K. (Edmonton, Alta.)				
Extending the Expressive Power of Semantic Networks (Erratum)	**7**	(4)	(1976)	369
SCHUNCK, B.G., see HORN, B.K.P.	**17**	(1–3)	(1981)	185–203
SELF, J.A. (Parkville, Australia)				
Concept Teaching	**9**	(2)	(1977)	197–221
SHIMURA, M. (Osaka, Japan) and F.H. GEORGE (Uxbridge U.K.)				
Rule-Oriented Methods in Problem Solving	**4**	(3–4)	(1973)	203–223
SHIRAI, Y. (Tokyo, Japan)				
A Context Sensitive Line Finder for Recognition of Polyhedra	**4**	(2)	(1973)	95–119
SHORTLIFFE, E., see DAVIS, R.	**8**	(1)	(1977)	15– 45
SHOSTAK, R.E. (Cambridge, MA)				
Refutation Graphs	**7**	(1)	(1976)	51– 64
SIEGEL, P., see BOSSU, G.	**25**	(1)	(1984)	13– 64
SIKLÓSSY, L., A. RICH and V. MARINOV (Austin, TX)				
Breadth-First Search: Some Surprising Results	**4**	(1)	(1973)	1– 27
SIKLÓSSY, L. and J. ROACH (Austin, TX)				
Model Verification and Improvement Using DISPROVER	**6**	(1)	(1975)	41– 52
SIMON, H.A. (Pittsburgh, PA)				
The Structure of Ill Structured Problems	**4**	(3–4)	(1973)	181–201
SIMON, H.A. (Pittsburgh, PA)				
Search and Reasoning in Problem Solving	**21**	(1–2)	(1983)	7– 29
SIMON, H.A. and J.B. KADANE (Pittsburgh, PA)				
Optimal Problem-Solving Search: All-or-None Solutions	**6**	(3)	(1975)	235–247
SIROVICH, F., see LEVI, G.	**7**	(3)	(1976)	243–259
SLAGLE, J.R., see CHANG, C.L.	**2**	(2)	(1971)	117–128
SLAGLE, J.R., see CHANG, C.L.	**12**	(2)	(1979)	159–178
SLEEMAN, D.H. and M.J. SMITH (Leeds, U.K.)				
Modelling Student's Problem Solving	**16**	(2)	(1981)	171–187
SLOMAN, A. (Sussex, U.K.)				
Interactions between Philosophy and Artificial Intelligence: The Role of Intuition and Non-Logical Reasoning in Intelligence	**2**	(3–4)	(1971)	209–225
SMITH, B., see WOS, L.	**22**	(3)	(1984)	303–356
SMITH, E.E. (Cambridge, MA)				
Cognitive Psychology (Correspondent's Report)	**25**	(3)	(1985)	247–253
SMITH, M.J., see SLEEMAN, D.H.	**16**	(2)	(1981)	171–187
SMITH, R.G., see DAVIS, R.	**20**	(1)	(1983)	63–109

SOBEL, I. (New York)
  On Calibrating Computer Controlled Cameras for Perceiving 3-D Scenes (Technical Note) **5** (2) (1974) 185–198
SRIDHARAN, N.S., see SCHMIDT, C.F. **11** (1–2) (1978) 45– 83
STALLMAN, R.M. and G.J. SUSSMAN (Cambridge, MA)
  Forward Reasoning and Dependency-Directed Backtracking in a System for Computer-Aided Circuit Analysis **9** (2) (1977) 135–196
STEELE Jr., G.L., see SUSSMAN, G.J. **14** (1) (1980) 1– 39
STEFIK, M. (Stanford, CA)
  Inferring DNA Structures from Segmentation Data **11** (1–2) (1978) 85–114
STEFIK, M. (Stanford, CA)
  Planning with Constraints (MOLGEN: Part 1) **16** (2) (1981) 111–139
STEFIK, M. (Stanford, CA)
  Planning and Meta-Planning (MOLGEN: Part 2) **16** (2) (1981) 141–169
STEFIK, M., J.S. AIKENS, R. BALZER, J. BENOIT, L. BIRNBAUM, F. HAYES-ROTH and E.D. SACERDOTI (Palo Alto, CA)
  The Organization of Expert Systems, A Tutorial **18** (2) (1982) 135–173
ŠTĚPÁNKOVÁ, O. and I.M. HAVEL (Prague, Czechoslovakia)
  A Logical Theory of Robot Problem Solving **7** (2) (1976) 129–161
STEVENS, K.A. (Cambridge, MA)
  The Visual Interpretation of Surface Contours **17** (1–3) (1981) 47– 73
STOCKMAN, G.C. (College Park, MD)
  A Minimax Algorithm Better than Alpha–Beta? **12** (2) (1979) 179–196
SUGIHARA, K. (Tokyo, Japan)
  Range-Data Analysis Guided by a Junction Dictionary **12** (1) (1979) 41– 69
SUGIHARA, K. (Nagoya, Japan)
  An Algebraic Approach to Shape-from-Image Problems **23** (1) (1984) 59– 95
SUSSMAN, G.J., see STALLMAN, R.M. **9** (2) (1977) 135–196
SUSSMAN, G.J. and G.L. STEELE Jr. (Cambridge, MA)
  CONSTRAINTS – A Language for Expressing Almost-Hierarchical Descriptions **14** (1) (1980) 1– 39
SWARTOUT, W.R. (Marina del Rey, CA)
  XPLAIN: A System for Creating and Explaining Expert Consulting Programs **21** (3) (1983) 285–325
SZOLOVITS, P. (Cambridge, MA) and S.G. PAUKER (Boston, MA)

Categorical and Probabilistic Reasoning in Medical Diagnosis	**11**	(1–2)	(1978)	115–144
TAPPERT, C.C. and N.R. DIXON (Yorktown Heights, NY)				
A Procedure for Adaptive Control of the Interaction between Acoustic Classification and Linguistic Decoding in Automatic Recognition of Continuous Speech	**5**	(2)	(1974)	95–113
TÄRNLUND, S.-A., see BROWN, F.M.	**12**	(3)	(1979)	207–229
TENENBAUM, J.M., see BARROW, H.G.	**17**	(1–3)	(1981)	75–116
TENENBAUM, J.M. and H.G. BARROW (Menlo Park, CA)				
Experiments in Interpretation-Guided Segmentation	**8**	(3)	(1977)	241–274
THOMPSON, H., see BOBROW, D.G.	**8**	(2)	(1977)	155–173
VERE, S.A. (Chicago, IL)				
Relational Production Systems	**8**	(1)	(1977)	47– 68
VERE, S.A. (Chicago, IL)				
Multilevel Counterfactuals for Generalizations of Relational Concepts and Productions	**14**	(2)	(1980)	139–164
VEROFF, R., see WOS, L.	**22**	(3)	(1984)	303–356
VOGE, W.M., see WEISCHEDEL, R.M.	**10**	(3)	(1978)	225–240
WALDINGER, R.J., see MANNA, Z.	**6**	(2)	(1975)	175–208
WALDINGER, R.J. and K.N. LEVITT (Menlo Park, CA)				
Reasoning About Programs	**5**	(3)	(1974)	235–316
WARREN, D.H.D., see PEREIRA, F.C.N.	**13**	(3)	(1980)	231–278
WATERMAN, D.A. (Pittsburgh, PA)				
Generalization Learning Techniques for Automating the Learning of Heuristics	**1**	(1–2)	(1970)	121–170
WATERMAN, D.A. and A. NEWELL (Pittsburgh, PA)				
Protocol Analysis as a Task for Artifical Intelligence	**2**	(3–4)	(1971)	285–318
WEBB, J.A. and J.K. AGGARWAL (Austin, TX)				
Structure from Motion of Rigid and Jointed Objects	**19**	(1)	(1982)	107–130
WEBER, S., see COLBY, K.M.	**2**	(1)	(1971)	1– 25
WEBER, S., see COLBY, K.M.	**3**	(1–4)	(1972)	199–221
WEINER, J.L. (Durham, NH)				
BLAH, A System Which Explains its Reasoning	**15**	(1–2)	(1980)	19– 48
WEISCHEDEL, R.M. (Newark, DE), W.M. VOGE and M. JAMES (Irvine, CA)				

An Artificial Intelligence Approach to Language Instruction **10** (3) (1978) 225–240
WEISS, S.M., see POLITAKIS, P. **22** (1) (1984) 23– 48
WEISS, S.M., C.A. KULIKOWSKI, S. AMAREL (New Brunswick, NJ) and A. SAFIR (New York)
A Model-Based Method for Computer-Aided Medical Decision-Making **11** (1–2) (1978) 145–172
WELHAM, B., see BUNDY, A. **16** (2) (1981) 189–211
WEYHRAUCH, R.W. (Stanford, CA)
Prolegomena to a Theory of Mechanized Formal Reasoning **13** (1–2) (1980) 133–170
WILKINS, D.E. (Menlo Park, CA)
Using Patterns and Plans in Chess **14** (2) (1980) 165–203
WILKINS, D.E. (Menlo Park, CA)
Using Knowledge to Control Tree Searching **18** (1) (1982) 1– 51
WILKINS, D.E. (Menlo Park, CA)
Domain-independent Planning: Representation and Plan Generation **22** (3) (1984) 269–301
WILKS, Y. (Stanford, CA)
A Preferential, Pattern-Seeking, Semantics for Natural Language Inference **6** (1) (1975) 53– 74
WILKS, Y. (Colchester, U.K.)
Making Preferences More Active **11** (3) (1978) 197–223
WILL, P.M. and K.S. PENNINGTON (Yorktown Heights, NY)
Grid Coding: A Preprocessing Technique for Robot and Machine Vision **2** (3–4) (1971) 319–329
WILLIAMS, B.C. (Cambridge, MA)
Qualitative Analysis of MOS Circuits **24** (1–3) (1984) 281–346
WINKER, S., see WOS, L. **22** (3) (1984) 303–356
WINOGRAD, T. (Stanford, CA)
Extended Inference Modes in Reasoning by Computer Systems **13** (1–2) (1980) 5– 26
WINOGRAD, T., see BOBROW, D.G. **8** (2) (1977) 155–173
WINSTON, P.H. (Cambridge, MA)
Learning by Creating and Justifying Transfer Frames **10** (2) (1978) 147–172
WINSTON, P.H. (Cambridge, MA)
Learning New Principles From Precedents and Exercises **19** (3) (1982) 321–350
WIPKE, W.T., G.I. OUCHI and S. KRISHNAN (Santa Cruz, CA)
Simulation and Evaluation of Chemical Synthesis – SECS: An Application of Artificial Intelligence Tech-

niques **11** (1–2) (1978) 173–193

WITKIN, A.P. (Menlo Park, CA)
Recovering Surface Shape and Orientation from Texture **17** (1–3) (1981) 17– 45

WOODHAM, R.J. (Vancouver, BC)
Analysing Images of Curved Surfaces **17** (1–3) (1981) 117–140

WOODS, W.A. (Cambridge, MA)
Optimal Search Strategies for Speech Understanding Control **18** (3) (1982) 295–326

WOODS, W.A. and J. MAKHOUL (Cambridge, MA)
Mechanical Inference Problems in Continuous Speech Understanding **5** (1) (1974) 73– 91

WOS, L., S. WINKER, B. SMITH (Argonne, IL), R. VEROFF (Albuquerque, NM) and L. HENSCHEN (Evanston, IL)
A New Use of an Automated Reasoning Assistant: Open Questions in Equivalential Calculus and the Study of Infinite Domains **22** (3) (1984) 303–356

WULFECK II, W.H., see SCANDURA, J.M. **5** (2) (1974) 149–183

YAKIMOVSKY, Y., see FELDMAN, J.A. **5** (4) (1974) 349–371

YANG, C.J., see LEHNERT, W.G. **20** (1) (1983) 15– 62

YATES, R.A., B. RAPHAEL (Menlo Park, CA) and T.P. HART (Bedford, MA)
Resolution Graphs **1** (4) (1970) 257–289

ZUCKER, S.W., see PEDNAULT, E.P.D. **16** (2) (1981) 213–222

Important Titles in Artificial Intelligence

Artificial and Human Intelligence

Edited Review Papers presented at the Int. NATO Symp., Lyon, France, Oct. 1981

A. Elithorn and **R. Banerji** *(editors)*

1984 vii + 344 p. US $40.00/Dfl. 120.00. ISBN 0-444-86545-4

Artificial and Human Intelligence is a bridgehead in a new area of comparative psychology. It bridges the gap between research on human thinking and the development of intelligent computer programs.

This book contains major papers which summarise recent advances in key research areas in this rapidly developing field and several of the contributions to this work will make compulsory reading for many years.

Main features: 1. Edited review papers. 2. New research contributions. 3. An effective introduction to the new comparative psychology of man: Machine and human ntelligence.

Artificial Intelligence

R.B. Banerji

1980 xiv + 254 p. US $33.50/Dfl. 100.00. ISBN 0-444-00334-7

This book is an exposition of several theoretical studies on Problem Solving Heuristics, that have been carried out in a number of research centers. Several heuristics have been studied in terms of their axiomatic structure, with respect to heir applicability to specific problems. This gives rise to computer programs which can develop heuristics for individual problems from problem definitions alone. The importance of he description language to such autonomy is discussed and a lexible language developed for this purpose of problem solving and pattern recognition.

By playing down the mathematical signs and discussing many examples, the author makes the book acceptable to discipline graduate students. This study has led to a computer program vhich can determine whether any one of the heuristics can be applied to a problem and if so, the proper parameters to use or the problem. It also points out that the effectiveness of this program is clearly dependent on what, in Artificial Intelligence, s called "knowledge". The book has a secondary purpose of bringing the field of Artificial Intelligence to the attention of professional mathematicians who may be of great help in dvancing the field.

Search and Heuristics

Repr. from Artificial Intelligence, Vol. 21, Nos. 1/2)

. Pearl *(editor)*

983 vi + 270 p. US $51.00/Dfl. 120.00. ISBN 0-444-86620-5

This work is comprised of 10 articles which are fairly epresentative of current research on search and heuristics. The general theme which threads through all these articles is he quest for understanding the workings of heuristic nowledge; how it is acquired, stored and used by people, ow it can be represented and utilized by machines and what nakes one heuristic succeed where others fail.

Qualitative Reasoning about Physical Systems

(Repr. from Artificial Intelligence, Vol. 24)

D.G. Bobrow *(editor)*

1984 vi + 492 p. Dfl. 170.00. ISBN 0-444-87670-7
Distributed in the USA and Canada by MIT Press, Cambridge

This volume brings together current work on qualitative reasoning. Its publication reflects the maturity of qualitative reasoning as a research area and the growing interest in problems of reasoning about physical systems.
The papers present knowledge bases for a number of very different domains, from heat flow, to transistors, to digital computation. A common theme of all these papers is explaining how physical systems work. An important shared criterion is that the behavioural description must be *compositional*, that is the description of a system's behavior must be derivable from the structure of the system.

Computer Vision

(Repr. from Artificial Intelligence, Vol. 17)

M. Brady *(editor)*

1981. 1st repr. 1984 vi + 508 p. US $63.75/Dfl. 175.00.
ISBN 0-444-86343-5
1st repr. as a paperback ed. 1984. US $30.00/Dfl. 90.00
ISBN 0-444-87511-5

This special volume of Artificial Intelligence, Vol. 17, recognises the considerable advances that have taken place in Computer Vision over the past decade. It contains fourteen papers that are representative of the best work currently in the field. Apart from being a state-of-the-art account, it also serves two rather different aims. Firstly, it is intended to give Artificial Intelligence researchers in the fields other than Vision an opportunity to become familiar with recent developments in the field. Secondly this book is intended to enable vision researchers from fields other than Artificial Intelligence to get a clearer picture of what an artificial intelligence approach to their problem might be, or might contribute.

Logic for Problem Solving

R. Kowalski

1979. 3rd repr. 1984 xiv + 288 p. US $29.00/Dfl. 90.00.
ISBN 0-444-00365-7

This book investigates the application of logic to problem-solving and computer programming. It assumes no previous knowledge of these fields, and is therefore appropriate as an introduction to logic, the theory of problem-solving, and computer programming.

The book is organized into three parts. The first part, Chapters 1 and 2, deals with the machine-independent semantics of the clausal form of logic and the use of clausal form for representing information. The second part, Chapters 3 to 8, discusses inference systems for clausal form; and the third part, Chapters 9 to 13, investigates extensions of clausal form as well as more powerful problem-solving methods.

north-holland

IN THE U.S.A. AND CANADA:
ELSEVIER SCIENCE
PUBLISHING CO., INC.
P.O. BOX 1663
GRAND CENTRAL STATION
NEW YORK, NY 10163, USA

IN ALL OTHER COUNTRIES:
ELSEVIER SCIENCE
PUBLISHERS
BOOK ORDER DEPT.
P.O. BOX 211
1000 AE AMSTERDAM
THE NETHERLANDS

prices are valid only in the USA and Canada. In all other countries the Dutch Guilder price is definitive.
omers in the Netherlands, please add 5% B.T.W. All prices are subject to change without prior notice

1891NHa/BKS/COMP-54

New Titles in Artificial Intelligence

Artificial Intelligence

A Technology at the Dawn of its Economic and Industrial Breakthrough

Proc. of the Int. Conf. on Artificial Intelligence (AI), Rüschlikon, Zurich, Switzerland, 12-13 April 1984.

Edited by: **T. Bernold and G. Albers**

The selection of papers presented in this book is intended to provide the European view of the current state of the art and the emerging developments in this area of advanced information processing. The four viewpoints, technology, practical applications, economic impact and research and training have been chosen to illustrate the various interdependencies and interactions but also differences in perception, needs and preferences of the different groups presently involved in Artificial Intelligence. The newcomer and potential user will find detailed descriptions of fourteen case-studies. The proceedings concentrate on Expert Systems, Flexible Manufacturing/Robotics and Intelligent Interfaces, three sub-areas with the fastest growing commercial relevance.

1985 xii + 334 pages
Price: US $44.50/Dfl. 120.00
ISBN 0-444-87719-3

Artificial Intelligence: Impacts on Science, Society, and Economy

Edited by: **R. Trappl**

The determination and assessment of impacts of Artificial Intelligence is important in order to avoid potential damage and to encourage socially helpful and economically useful AI research and applications.
Leading AI researchers, working in different areas of AI and living in countries with different social systems, were invited to come to a task force meeting and also to contribute their statements in writing.

This book presents a detailed description of AI impacts, based both on the meeting and an extensive literature search, on science, technology, economics, society, culture, and politics. It is addressed to the AI researcher, concerned about the potential impacts of his/her work, to the decision-maker in government, in a funding institution, or a private company, who spends or invests money or will do so in AI research, and to all people who are interested in the future changes of their lives through AI.

Main features of this work are: 1. The detailed description of expected AI impacts on science, technology, economics, society, culture, and politics. 2. The personal view of leading AI researchers, working in different areas of AI and living in countries with different social systems. 3. A bibliography listing more than 200 books, articles, and research memos which contain material related to this topic. A KWIC-index helps with the retrieval of a source. 4. A glossary of AI terms making the content of the book also easily comprehensible for the AI novice.

1985 About 240 p.
US $37.00/Dfl. 100.00
ISBN 0-444-87587-5

Knowledge Representation for Decision Support Systems

Proc. of the IFIP WG 8.3 Working Conf., Durham, UK, 24-26 July 1984

Edited by: **L.B. Methlie and R. Sprague**

This book is organized into three sections in accordance with the structure of the conference program. The first section contains four major papers which were commissioned by the Programme Committee to set the tone for the conference and to provide a structured source of relevant material from contributing disciplines.
The second section contains "specific papers" submitted to the conference, and concerned with the following topics of specific interest: epistemological issues for DSS, capturing organizational knowledge for DSS, complementarity between human and formal DSS, and representations for adaption.
The third section contains the "short papers". Short papers would be on any topic of relevance to the theme of the conference. The work "short" refers to the time allowed for presentation (ten minutes), and does not necessarily reflect the length of the paper as it appears in these Proceedings.

1985 viii + 268 pages
Price: US $40.75/110.00
ISBN 0-444-87739-8

Forthcoming:

Artificial Intelligence – Methodology, Systems, Applications

Proceedings of the International Conference, Varna, Bulgaria, 17-20 September 1984

Edited by: **W. Bibel and B. Petkoff**

This volume contains a small selection of high quality papers presented at the International Conference "Artificial Intelligence-Methodology, Systems, Applications". They address important actual issues in the field of AI, discuss methodologial problems, describe running AI systems, and point out applications of AI technologies to various areas.

Advances in Artificial Intelligence

Proceedings of the ECAI'84 Conference, Pisa, Italy, 5-7 September 1984

Edited by: **T. O'Shea**

A number of carefully selected papers on Expert Systems, Logic Programming, Natural Language, Knowledge Representation, Cognitive Modelling, System Support, Robotics, Automated Programming, Theorem Proving and Vision, are presented in this book.
Contributions to this conference came from 22 countries.

north-holland

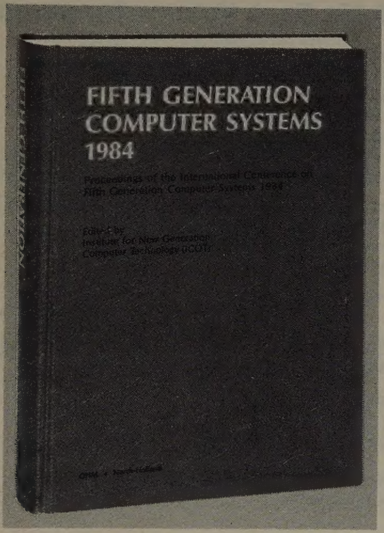
IN THE U.S.A. AND CANADA:
ELSEVIER SCIENCE
PUBLISHING CO., INC.
P.O. BOX 1663
GRAND CENTRAL STATION
NEW YORK, NY 10163, USA

IN ALL OTHER COUNTRIES:
ELSEVIER SCIENCE
PUBLISHERS
BOOK ORDER DEPT.
P.O. BOX 211
1000 AE AMSTERDAM
THE NETHERLANDS

US $ prices are valid only in the USA and Canada. In all other countries the Dutch Guilder price is definitive.
Customers in the Netherlands, please add 5% B.T.W. All prices are subject to change without prior notice.

NH/COMP/BK/

Future Generations Today



Fifth Generation Computer Systems 1984

Proceedings of the International Conference on Fifth Generation Computer Systems, November 6–9, 1984, Keio Plaza Hotel, Tokyo, Japan

Edited by: **ICOT (Institute for New Generation Computer Technology)**

The Proceedings of the International Conference on Fifth Generation Computer Systems 1984 consists of two parts. The first part contains a report on the current status of FGCS Project research carried out over the past two years at ICOT, as well as future planning along this line. The second part is intended to serve as a printed record of the many research efforts made in conjunction with this undertaking.
In total, the book consists of 206 papers by experts from 29 countries.

1984 722 pages
US $75.00/Dfl. 250.00
ISBN: 0-444-87673-1

Fifth Generation Computer Systems

Proceedings of the International Conference on Fifth Generation Computers, Tokyo, Japan, 19–22 October 1981

Edited by: **T. Moto-Oka**

The Japan Information Processing Development Centre (JIPDEC) established a committee for Study and Research on Fifth Generation Computers. Beginning in 1979, this Committee set out on a two-year investigation into the most desirable types of computer systems for application in the 1990's (fifth-generation computers) and how the development projects aimed at the realization of these systems should be carried forward.

"...The publication of this work, containing as it does all the relevant papers to date on the Japanese Fifth Generation Project, comes as a substantial relief to the reviewer. Ever since Computer Weekly ran reviews of the project taken from the Tokyo conference papers last year, it has been plagued by requests for the documents. Well, here they are..."

Computer Weekly

1982. 1st reprint 1984 vii + 288 pages
US $49.00/Dfl. 150.00
ISBN: 0-444-86440-7

The Fifth Generation Challenge

Proceedings of the Association for Computing Machinery 1984 Annual Conference (ACM '84), San Francisco CA, USA, 8–10 October 1984

Edited by: **Richard L. Muller** and **James J. Pottmyer**

This book is the result of a high-level discussion between many eminent scientists who met to discuss computer science developments in the USA, Japan and Europe and to consider the impact of current, emerging and projected technologies.

The Association for Computing Machinery (ACM) is one of the world's largest educational scientific societies for computing professionals. The concerted efforts and know-how of its members are clearly reflected in this proceedings volume.

1984 about 350 pages
Dfl. 175.00

ISBN: 0-444-87661-8

A New Journal:

Future Generations Computer Systems

Consulting Editors:
Prof. H. Aiso, Dept. of Electrical Engineering, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Japan.
Dr. F. Kuo, SRI International, 333 Ravenswood Ave., Menlo Park, CA 94029, USA.
Prof. P. Raulefs, University of Kaiserslautern, Fachbereich Informatik, Postfach 3049, D-6750 Kaiserslautern, FRG.

A new journal, entirely devoted to developments in the exciting field of new computer systems which are expected to dominate the *Information Technology* scene for the remainder of the century. Future Generations Computer Systems aims at a balanced coverage of all significant efforts at the supranational, national, cooperative, institutional and individual level.

Subscription Price: US $156.25/Dfl. 422.00 (Including postage/handling)
1984/1985: Volume 1 in 6 issues
ISSN: 0167-739 X

north-holland

IN THE U.S.A. AND CANADA:
ELSEVIER SCIENCE
PUBLISHING CO., INC.
P.O. BOX 1663
GRAND CENTRAL STATION
NEW YORK, NY 10163, USA

IN ALL OTHER COUNTRIES:
ELSEVIER SCIENCE
PUBLISHERS
BOOK ORDER DEPT.
P.O. BOX 211
1000 AE AMSTERDAM
THE NETHERLANDS

$ prices are valid only in the USA and Canada. In all other countries the Dutch Guilder price is definitive.
stomers in the Netherlands, please add 5% B.T.W. All prices are subject to change without prior notice.

NH/COMP/BK/2013

Artificial Intelligence

An International Journal

Editor-in-Chief: **Daniel G. Bobrow**, Xerox Corporation, Palo Alto Research Center, 3333 Coyote Hill Road, Palo Alto, CA 94304, U.S.A.

Associate Editor:
P.J. Hayes, Department of Computer Science, University of Rochester, Rochester, NY 14627, U.S.A.

Coordinator Europe:
H.-H. Nagel, Fraunhofer-Institut für Informations- und Datenverarbeitung (IITB), Sebastian-Kneipp-Strasse 12-14, 7500 Karlsruhe 1, F.R. Germany.

Coordinator Far East:
M. Nagao, Dept. of Electrical Engineering, Kyoto University, Sakyo, Kyoto, Japan.

Aims and Scope

The Journal, which commenced publication in 1970, is now the generally accepted international forum for the publication of results of current research in this field. A glance at the contents of back numbers, to be found in the **Master Index** of Volumes 1-25, indicates the wide variety of topics studied and reported on; for example, the learning of heuristics, scene analysis, induction, heuristic search, theorem-proving, artificial paranoia, reasoning by analogy, protocol analysis, sentence comprehension, robot planning, question answering, interpretation of imperfect line data, chess programs, etc. Almost all back volumes are still available.

Subscription Information

1985: volume 25-27, in 9 issues
Price: US $246.75/Dfl. 666.00
(Including postage/handling)
ISSN: 0004-3702

Available Back Volume Numbers

Back volumes are available from the publisher. Volumes available are:
Vol. 1 (1970), Vol. 2 (1971), Vol. 3 (1972), Vol. 4 (1973), Vol. 5 (1974), Vol. 6 (1975), Vol. 7 (1976), Vols. 8-9 (1977), Vols. 10-11 (1978), Vols. 12-13 (1979), Vols. 14-15 (1980), Vols. 16-17 (1981), Vols. 18-19 (1982), Vols. 20-21 (1983), Vols. 22-24 (1984).

Price per volume: US $87.00/Dfl. 235.00 (Including postage/handling)
Total price: US $2,089.00/Dfl. 5,640.00 (Including postage/handling)

Orders for back volumes are accepted on a prepaid basis only

A selection of papers, published in the journal **Artificial Intelligence**, have been published as books:

Qualitative Reasoning About Physical Systems
Reprint from Artificial Intelligence, Vol. 24
Edited by **D.G. Bobrow**
1984 vi + 492 pages
Price: Dfl. 170.00
ISBN: 0-444-87670-7

Search and Heuristics
Reprint from Artificial Intelligence, Vol. 21, Nos. 1/2
Edited by **J. Pearl**
1983 vi + 270 pages
Price: US $51.00/Dfl. 120.00
ISBN: 0-444-86620-5

Computer Vision
Reprint from Artificial Intelligence, Vol. 17
1981 1st repr. 1984 vi + 508 pages
Edited by **M. Brady**
Price: US $63.75/Dfl. 175.00
ISBN: 0-444-86343-5
1981 1st repr. as a paperback ed. 1984
US $30.00/Dfl. 90.00
ISBN: 0-444-87511-5

ORDER FORM

Please mail this form (or a photocopy), directly to one of the following addresses:

Elsevier Science Publishers BV
Attn: Subscription Order Dept.
P.O. Box 211,
1000 AE Amsterdam
The Netherlands

Customers in the USA/Canada mail to:
Elsevier Science Publishers
Attn: Journal Information Center
52, Vanderbilt Avenue,
New York, N.Y. 10017

☐ YES, I herewith order a subscription to **Artificial Intelligence**, Volume 25-27, 1985, in 9 issues. Price: US $246.75/Dfl. 666.00 (Including postage/handling)

☐ YES, I herewith order back volumes ____________
____________ Price per volume: US $87.00/Dfl. 235.00 (Including postage/handling)

☐ **Payment enclosed:**
(Bank Draft/Eurocheque/International Money Order/Personal Cheque/Postal Cheque)
Customers in the Netherlands, please add 5% BTW.

☐ **Charge my credit card:**
☐ Mastercard ☐ Eurocard ☐ Access ☐ American Express ☐ VISA
Card No. ____________ Valid until ____________

Name ____________

Professional Address ____________

____

____

Date ____________ Signature

US $ prices are valid only in the USA and Canada. In all other countries the Dutch Guilder price is definitive. Customers in the Netherlands, please add 5% B.T.W. All prices are subject to change without prior notice.

NH/COMP/JNL/

Editorial Board (continuation)

Z. PYLYSHYN
University of Western Ontario, London,
Ont., Canada

T. SAKAI
Kyoto University, Japan

N.S. SRIDHARAN
Artificial Intelligence Department,
BBN Labs., Cambridge, MA, U.S.A.

M.J. STEFIK
Xerox Palo Alto Research Center,
Palo Alto, CA, U.S.A.

W. WAHLSTER
Universität des Saarlandes,
Saarbrücken, F.R. Germany

D.E. WALKER
Bell Communication Research, Morristown, NJ,
U.S.A.

Y. WILKS
University of Essex, Colchester, England, U.K.

T. WINOGRAD
Stanford University, Stanford, CA, U.S.A.

P.H. WINSTON
Massachusetts Institute of Technology,
Cambridge, MA, U.S.A.

W.A. WOODS
Applied Expert Systems, Inc.,
Cambridge, MA, U.S.A.

Review Editor

M.J. STEFIK
Xerox Corporation, Palo Alto Research Center,
3333 Coyote Hill Road, Palo Alto, CA 94304,
U.S.A.

Correspondents' Reports

There are a number of areas which overlap with artificial intelligence that have journals containing papers of interest to the readers of the Artificial Intelligence Journal. In order to better inform our readers of what is being published, we have selected a number of area 'Correspondents'.

A correspondent reviews the publications in an area, and selects articles of interest to our readers. Every six months or so, we will publish a column from each of our correspondents, listing selected references with a sentence or two describing why the selected article is of interest. Our areas and correspondents are:

Michael BRADY (Vision)
Artificial Intelligence Laboratory,
Massachusetts Institute of Technology,
Cambridge, MA 02139, U.S.A.

Daniel DENNETT (Philosophy and Logic)
Department of Philosophy,
Tufts University,
Medford, MA 02155, U.S.A.

Barbara GROSZ (Natural Language)
SRI International, 333 Ravenswood Ave, Menlo Park, CA 94025, U.S.A.

Tomas LOZANO-PEREZ (Robotics)
Artificial Intelligence Laboratory,
Massachusetts Institute of Technology,
Cambridge, MA 02139, U.S.A.

Zenon PYLYSHYN (Cognitive Psychology)
Centre for Cognitive Science,
University of Western Ontario, London,
Ont., Canada N6A 5C2.

Computer Science and Multiple Valued Logic

Theory and Applications

Completely Revised Edition

Edited by DAVID C. RINE, *Computer Science Department, Western Illinois University, Macomb, IL, U.S.A.*

1984 xxxiv + 642 pages. Price: US $55.00/Dfl. 175.00 ISBN 0-444-86882-8

Many new and important developments have taken place in multiple-valued logic as it pertains to computer engineering and computer science. For example, past literature has reported that fewer wires are needed to carry multiple-valued logic signals, requiring fewer pins per package; density of stored information in memory may be significantly raised by increasing the number of digits per memory cell, with multiple-valued logic; functional density on a chip may be significantly raised with multiple-valued logic; encoding of information may be improved, while recent applications have reported memory word width reduction; bus structures and control; testing and diagnosis of faults; chip area reduction; rom area reduction.

For computer engineers, computer scientists, applied mathematicians and physicists who wish to become conversant with these developments, this book provides a singularly comprehensive and readily digestible introduction to multiple-valued logic, and that it is indeed both intellectually challenging and practically applicable.

CONTENTS: Preface. A selected survey of multiple-valued logic design for digital computing systems: 1952–1983. **Introduction.** *Chapter 1:* An introduction to multiple-valued logic; MVL teaching aids; a ternary inverter and application. **Part I. Algebraic Theory.** *Chapter 2:* From fixed to mixed radix; Multiple-valued logic design and applications in binary computers; Chain based lattices. **Chapter 3:** Decisive implication; Multiple-valued signal processing with limiting; The development of multiple-valued logic as related to computer science; P-algebras, and abstraction from Post algebras. *Chapter 4:* Post algebras through P_0 and P_1 lattices. *Chapter 5:* An algorithm for axiomatizing every finite logic. *Chapter 6:* Completeness properties of multiple-valued logic algebras. **Part II. Logic Design and Switching Theory.** *Chapter 7:* Computer simplification of multi-valued switching functions. *Chapter 8:* Minimization of multi-valued functions. *Chapter 9:* The Allen-Givone implementation oriented algebra. *Chapter 10:* Multi-valued asynchronous networks. *Chapter 11:* Binary network hazard elimination by multi-valued gates; techniques and relative costs. **Part III. Threshold Logic Design.** *Chapter 12:* A monograph on ternary threshold logic. **Part IV. Physical Components and Implementations.** *Chapter 13:* Electronic circuits for multi-valued digital systems. *Chapter 14:* Multiple-valued negative resistance integrated circuits. **Part V. Applications and Implementations.** Section A. *Devices.* *Chapter 15:* Multiple-valued I^2L, applications and extensions. *Chapter 16:* Theory and design of multiple-valued logic CCD's. *Chapter 17:* N bits per cell ROM. Section B. *Circuit Design and Testing. Chapter 18:* Multi-processor system diagnosis with three-valued test outcomes; Diagnosability of systems with three-valued test outcomes. *Chapter 19:* Fault detection in multiple-valued circuits. Section C. *Other Applications.* *Chapter 20:* Variable-valued logic and its applications to pattern recognition and machine learning. *Chapter 21:* Multi-real-valued Walsh functions.

north-holland

IN THE U.S.A. AND CANADA:
ELSEVIER SCIENCE
PUBLISHING CO., INC.
P.O. BOX 1663
GRAND CENTRAL STATION
NEW YORK, NY 10163, USA

IN ALL OTHER COUNTRIES:
ELSEVIER SCIENCE
PUBLISHERS
BOOK ORDER DEPT.
P.O. BOX 211
1000 AE AMSTERDAM
THE NETHERLANDS

US $ prices are valid only in the USA and Canada. In all other countries the Dutch Guilder price is definitive.
Customers in the Netherlands, please add 5% B.T.W. All prices are subject to change without prior notice.

1893NH/BK/COMP